Developing networks in Climate Services

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1. JPI in general

Background

- **Major societal challenges like Climate Change** are so great that national (research) programs cannot tackle them effectively on their own.

- However (research) programs often run isolated leading to **fragmentation, duplication, ineffectiveness**.

=> Developing networks could remedy this situation**.**

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Collaboration increases Quality and Cost Effectiveness

Advantages:

– stronger societal relevance
– higher (scientific) quality
– long-term continuity
– greater cost-efficiency
– stronger global position
– greater connectedness…

March 2008: The European Council called on the Commission and Member States to explore the potential of Joint Programming, asking for joint activities to be launched by 2010.

Dec. 2011: Council adopts launch of **JPI-Climate: Connecting Climate Knowledge for Europe** (after maturity check)

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JPI CLIMATE Countries

Partners
13 member countries:
Austria, Belgium, Denmark, Finnland,
Germany, Irleand, Italy, Norway,
Sweden, Netherlands, Great Britain,
Spain

Non-voting member: European
Commission
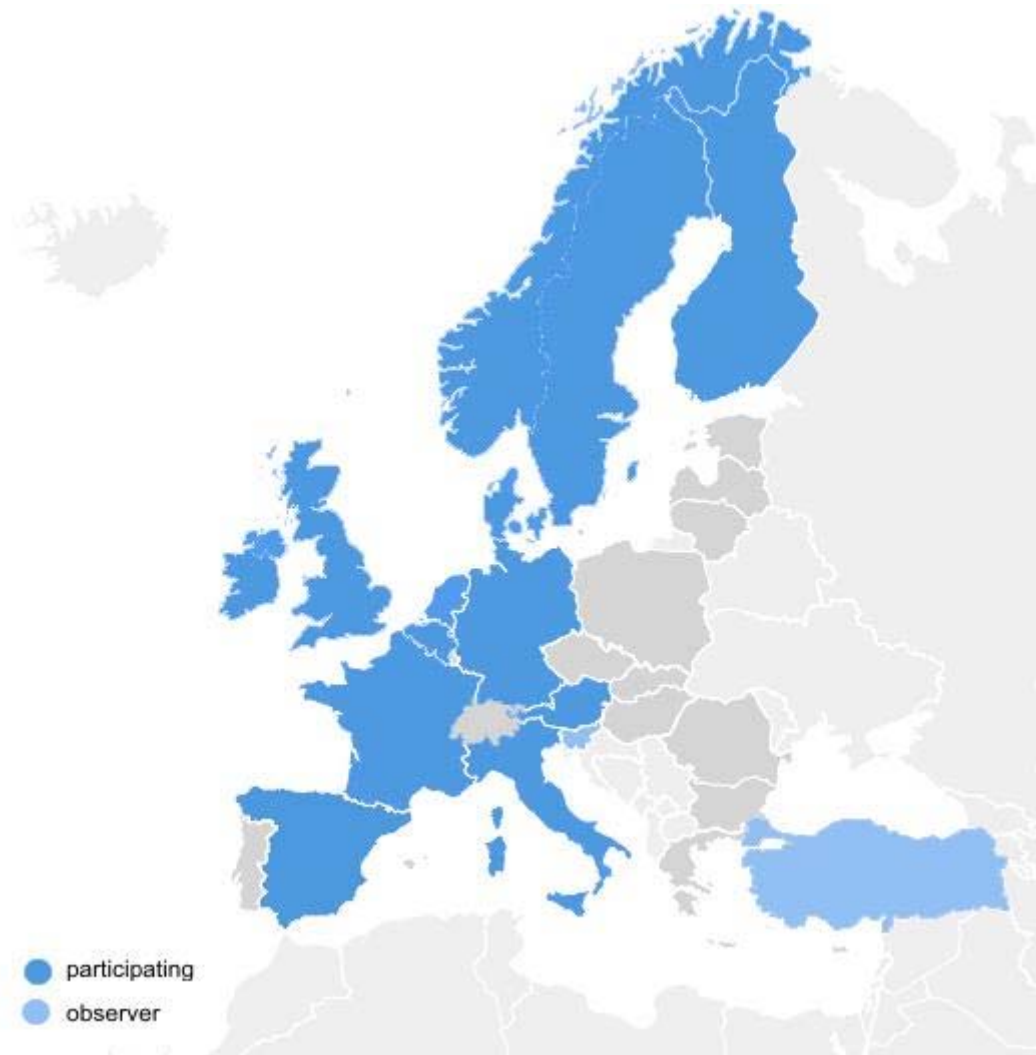
Oberserver: Slowenia, Turkey

Oberserver Institutions:
NordForsk, EEA, ERA-Net Circle 2,
ECRA

JPI CLIMATE participants (related to
Climate Research):
⇒represent 87,9% of partners in FP7
⇒gained 93,3 % of FP7 funds (2007-
2010)
⇒comprise more than 200 Mio €/a
from national funds

- participating
- observer

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3 main pillars of JPI-Climate
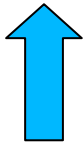
Connecting:
„Fireplace" idea of connecting different actors" (13 member countries, EEA, Circle2, EU-COM, Climate KIC…)

Coordinating:
Alignment of national research programmes, Joint research funding etc.

Integrating: Providing integrated climate knowledge and decision support services for societal innovation

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GB

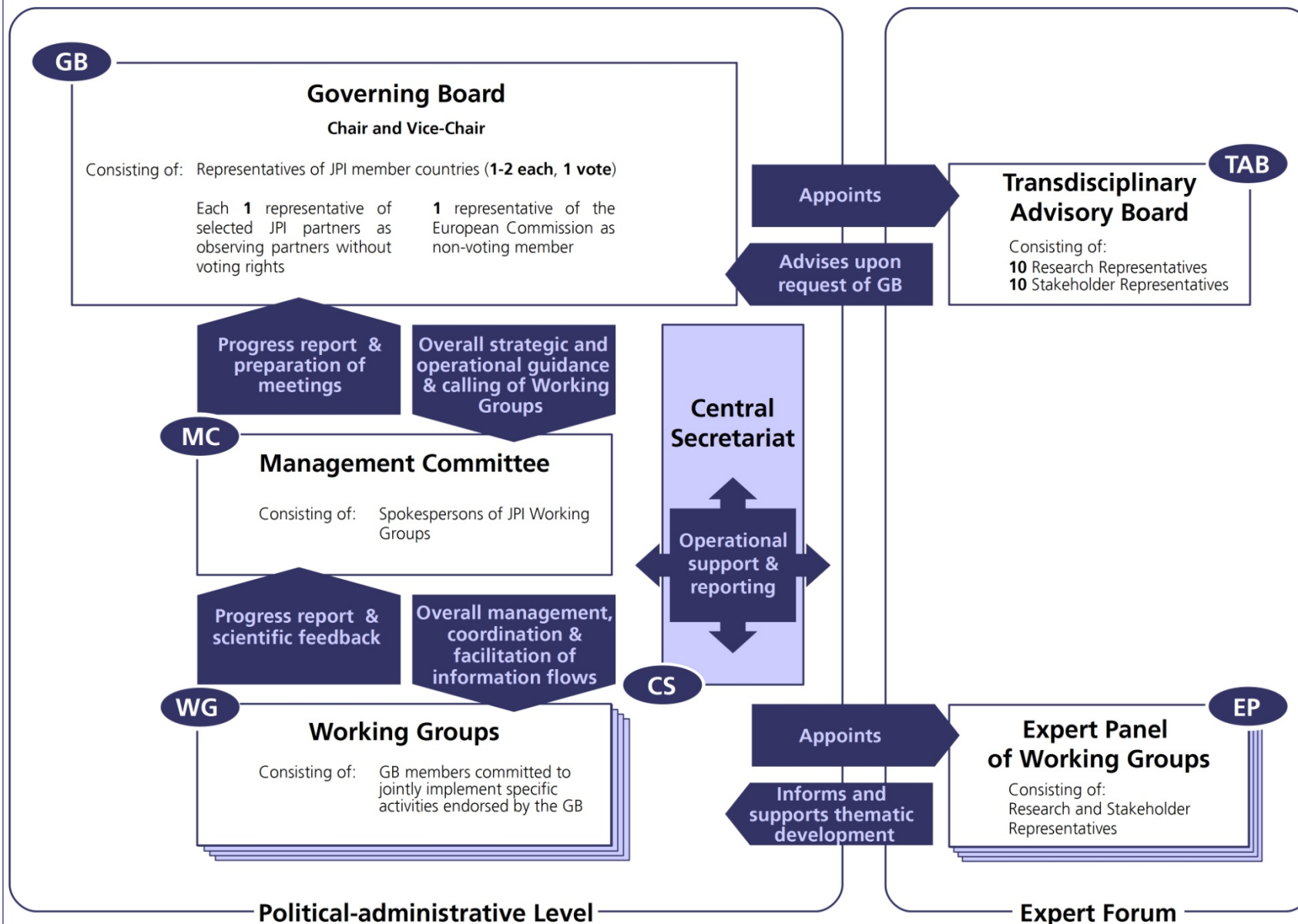**Governing Board**

Chair and Vice-Chair

Consisting of: Representatives of JPI member countries (**1-2 each**, **1 vote**)

Each **1** representative of selected JPI partners as observing partners without voting rights

1 representative of the European Commission as non-voting member

Appoints

Advises upon request of GB

TAB

Transdisciplinary Advisory Board

Consisting of:
10 Research Representatives
10 Stakeholder Representatives

Progress report & preparation of meetings

Overall strategic and operational guidance & calling of Working Groups

Central Secretariat

MC

Management Committee

Consisting of: Spokespersons of JPI Working Groups

Operational support & reporting

Progress report & scientific feedback

Overall management, coordination & facilitation of information flows

CS

WG

Working Groups

Consisting of: GB members committed to jointly implement specific activities endorsed by the GB

Appoints

Informs and supports thematic development

EP

Expert Panel of Working Groups

Consisting of:
Research and Stakeholder Representatives

Political-administrative Level

Expert Forum

GOVERNANCE

Sustainability   Stakeholder-Orientation   Adaptability   Transparency   Cost-Efficiency
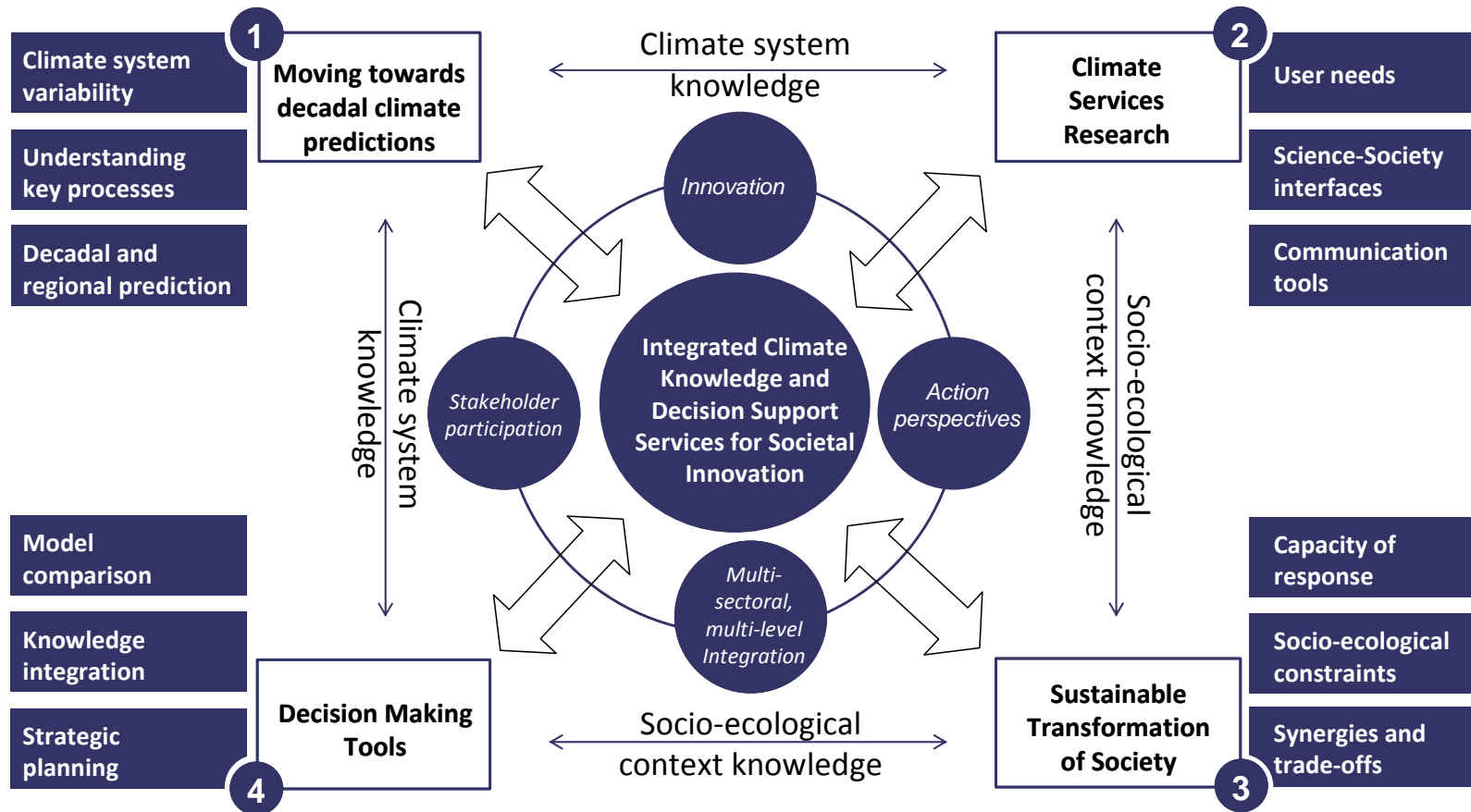
Strategic Research Agenda of JPI CLIMATE
overall rationale

- Promotes <u>joint research across natural and social sciences</u> within in the realm of climate change and links it to sustainable transformations of society

- Links climate change research to <u>societal contexts of decision-making</u> on mitigation + adaptation and mainstreaming climate into non-climate policies and planning

- Increases the <u>resolution of the physical basis</u> of climate science and connects scales: from global to local and from centuries to seasons

- Supports the <u>preparation and provision of services</u> to support of concrete decision making questions

Strategic Research Agenda of JPI CLIMATE

4 Modules strongly linked to each other
connecting climate knowledge and decision making

1 Moving towards decadal climate predictions

Climate system knowledge

2 Climate Services Research

| Climate system variability |
| Understanding key processes |
| Decadal and regional prediction |

| User needs |
| Science-Society interfaces |
| Communication tools |

Innovation

Climate system knowledge

Socio-ecological context knowledge

Stakeholder participation

Integrated Climate Knowledge and Decision Support Services for Societal Innovation

Action perspectives

Multi-sectoral, multi-level Integration

| Model comparison |
| Knowledge integration |
| Strategic planning |

| Capacity of response |
| Socio-ecological constraints |
| Synergies and trade-offs |

4 Decision Making Tools

Socio-ecological context knowledge

3 Sustainable Transformation of Society

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Strategic Research Agenda of JPI CLIMATE

Module 1: Moving towards decadal Climate Prediction

- Investigate climate predictability on <u>seasonal to decadal time scales</u>

- Provide reliable climate information for the <u>next few decades and up to the centennial scale</u>

- Improve the observation, understanding and modelling of <u>key processes and mechanisms</u>

- Promote and develop a <u>European collaboration environment</u> for climate modelling and long-term monitoring and analysis of the earth system.

2

Climate Services Research

User needs

Science-Society interfaces

Communication tools

Socio-ecological context knowledge

Model comparison

Knowledge integration

Strategic planning

Multi-sectoral, multi-level Integration

Decision Making Tools

4

Socio-ecological context knowledge

Sustainable Transformation of Society

3

Capacity of response

Socio-ecological constraints

Synergies and trade-offs

Strategic Research Agenda of JPI CLIMATE

1 **Moving towards decadal climate predictions**

Climate system variability

Understanding key processes

Decadal and regional prediction

Climate system knowledge

Innovation

2 **Climate Services Research**

User needs

Science-Society interfaces

Communication tools

Socio-ecological context knowledge
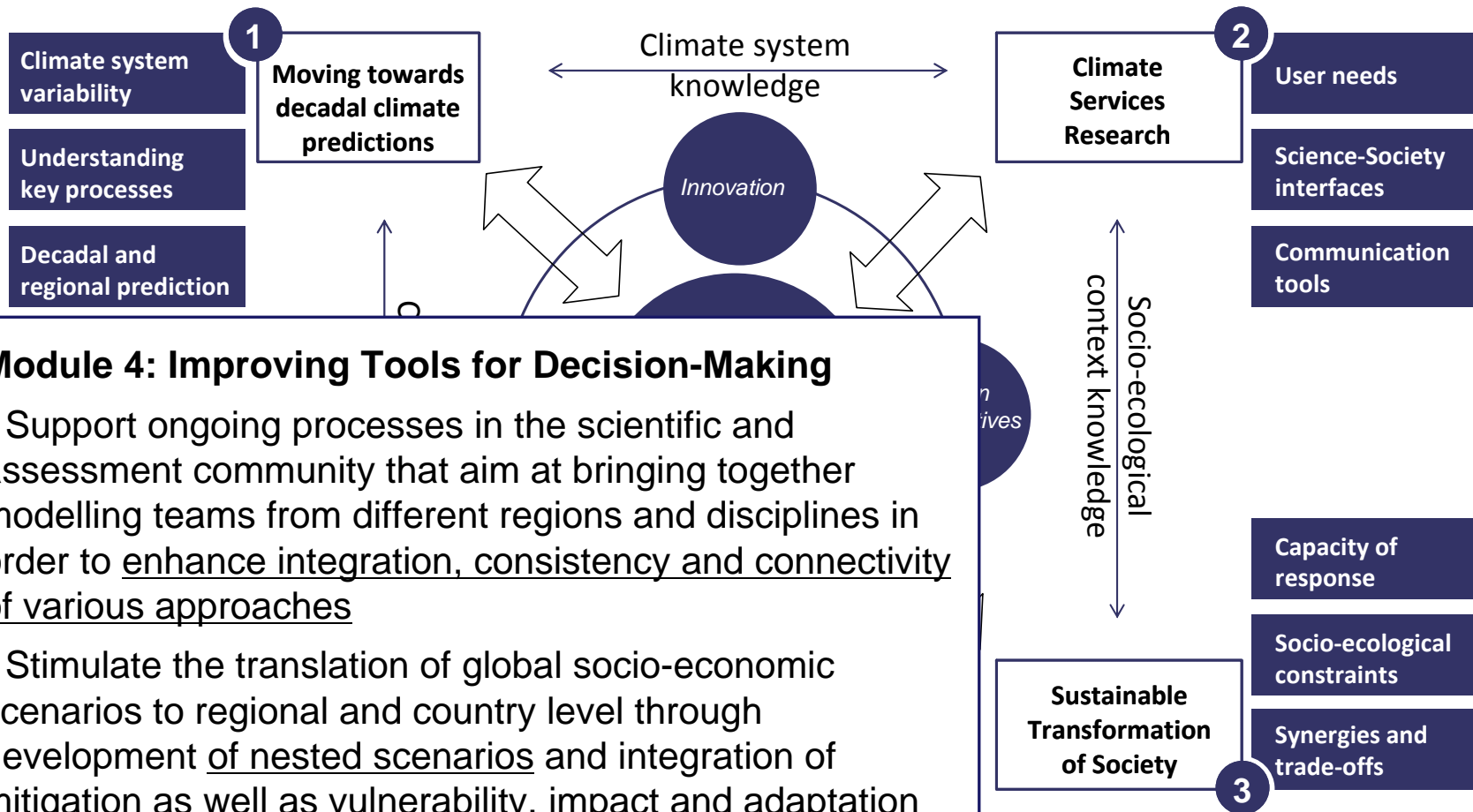
Module 4: Improving Tools for Decision-Making

• Support ongoing processes in the scientific and assessment community that aim at bringing together modelling teams from different regions and disciplines in order to <u>enhance integration, consistency and connectivity of various approaches</u>

• Stimulate the translation of global socio-economic scenarios to regional and country level through development <u>of nested scenarios</u> and integration of mitigation as well as vulnerability, impact and adaptation elements into a <u>comparable set of scenarios at different scales.</u>

Capacity of response

Socio-ecological constraints

Sustainable Transformation of Society

Synergies and trade-offs

3

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Strategic Research Agenda of JPI CLIMATE

1

Climate system variability

Understanding key processes

Decadal and regional prediction

Moving towards decadal climate predictions

Climate system knowledge

Innovation

Climate system knowledge

Stake... partic...

Climate Services Research

2

User needs

Science-Society interfaces

Communication tools

So... con...

Model comparison

Knowledge integration

Strategic planning

Decision Making Tools

4

Module 3: Sustainable Transformations of Society

• Understanding the social dimension of climate change: societal barriers and incentives for adaptive and mitigative responses, role of climate knowledge in decision making

• Understanding the systemic dimension of climate change: socio-ecological and socio-economic limits, opportunities and trade-offs of mitigation and adaptation strategies

• Understanding societal transformations in the face of climate change: sustainable pathways, visions, and governance

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Climate system variability

Understanding key processes

Decadal and regional prediction

1 Moving towards decadal climate predictions

Climate system knowledge

Stake... partic...

Module 2: Research on Climate Services

• Enhance the <u>efficiency of the development</u> of Climate Services in the individual European countries

• Improving the <u>interfaces</u> between <u>climate and climate impact research</u> and between <u>research and climate service</u> providers

• Identify <u>user needs</u> in specific sectors and develop adequate services, service innovation

• Improve <u>consistency in the methods and approaches</u> used by the Climate Services in the individual European countries

Model comparison

Knowledge integration

Strategic planning

Decision Making Tools

4

Multi-sectoral, multi-level Integration

Socio-ecological context knowledge

Sustainable Transformation of Society

3

Capacity of response

Socio-ecological constraints

Synergies and trade-offs
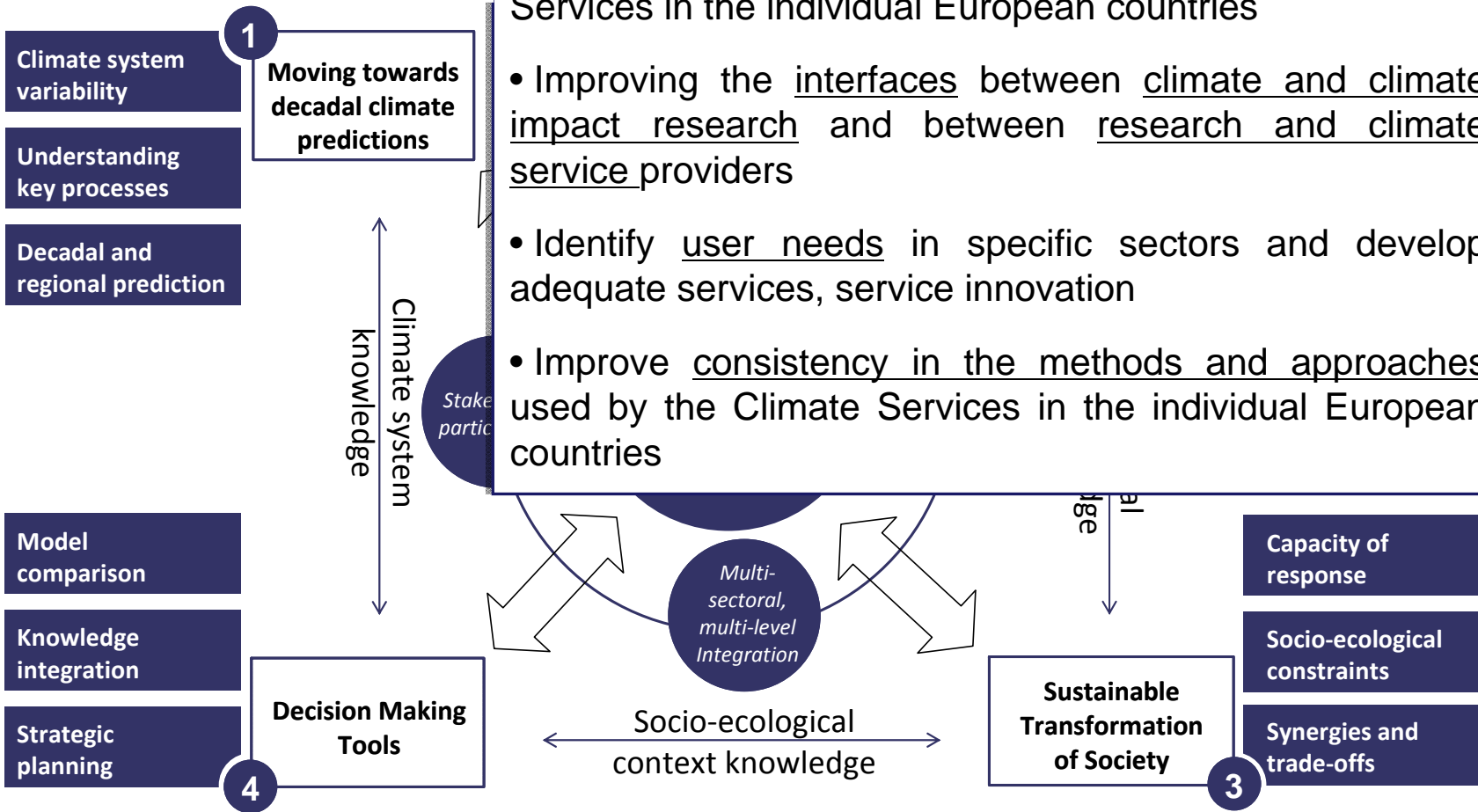
2.   JPI Climate Module 2:
Researching and advancing CS development

Background

• Many countries are currently developing climate services capacity, producing knowledge-based information about projected regional and sectoral CC and impacts

• Currently, each provider uses its own methods/approaches for data and information (even though all services   actually based on the same core information (climate models, observations, scenarios)).

• CS still generally organized on a national level.

=> How essential is the exchanging of knowledge in terms of developing and delivering Climate Services?

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Added Values:

– Improve the efficiency of the planning, development and quality of climate services

– Enhance consistency in the methods used with regard to data availability, improved tools/methods, and for cross-border issues (e.g. management of river basins, mountain areas or coastlines)

– Increase consistency in critical areas of climate impact research.

– Avoid duplication of efforts, decrease fragmentation

– Broadening existing knowledge base (e.g. creating common data bases, method and impact of communication, guidelines pertaining to the use and processing of climate data)

– Promotion of consistency in trans-boundary information on impacts of CC -> development of systemic approach exceeding research capacities of individual member states

– Enabling countries with specific climate knowledge requirements (not covered by EU-wide programs) to jointly perform focused high-quality research

– Broadening of the knowledge and resource base on which investment decisions at regional, local or company level are based (= strengthening competiveness of economy and enhancing capacities for sustainable development)

– Through identification of „good practices" in terms of successful adaptation of tools, models, instruments and methods to specific sectors and local circumstances competitive advantages of the ERA

– Longer-term vision and stable research collaboration on CS in Europe

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JPI-Climate meets a structural demand (across Europe) for CS by a research component into the development and deployment of CS and by establishing a network of CS providers, who can exchange knowledge and share learning.

Key objectives:

- Improve/enhance efficiency of set up and employment of CS

- Improve/enhance consistency in methods/approaches used

- Improve/optimize quality of CS

- Avoid duplication in development of tools/methods/user inventarisation

- Improve communication of Climate knowledge to end-useres

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The pyramide of M2 research

Researching and advancing climate service development		
Quality assurance of climate services	Effectiveness of CS production and delivery	Standards/ good practices for aspects of CS
Assessment and enhancement of CS quality	Network of CS providers	Understanding user-needs	Improve interface between climate research and its applications
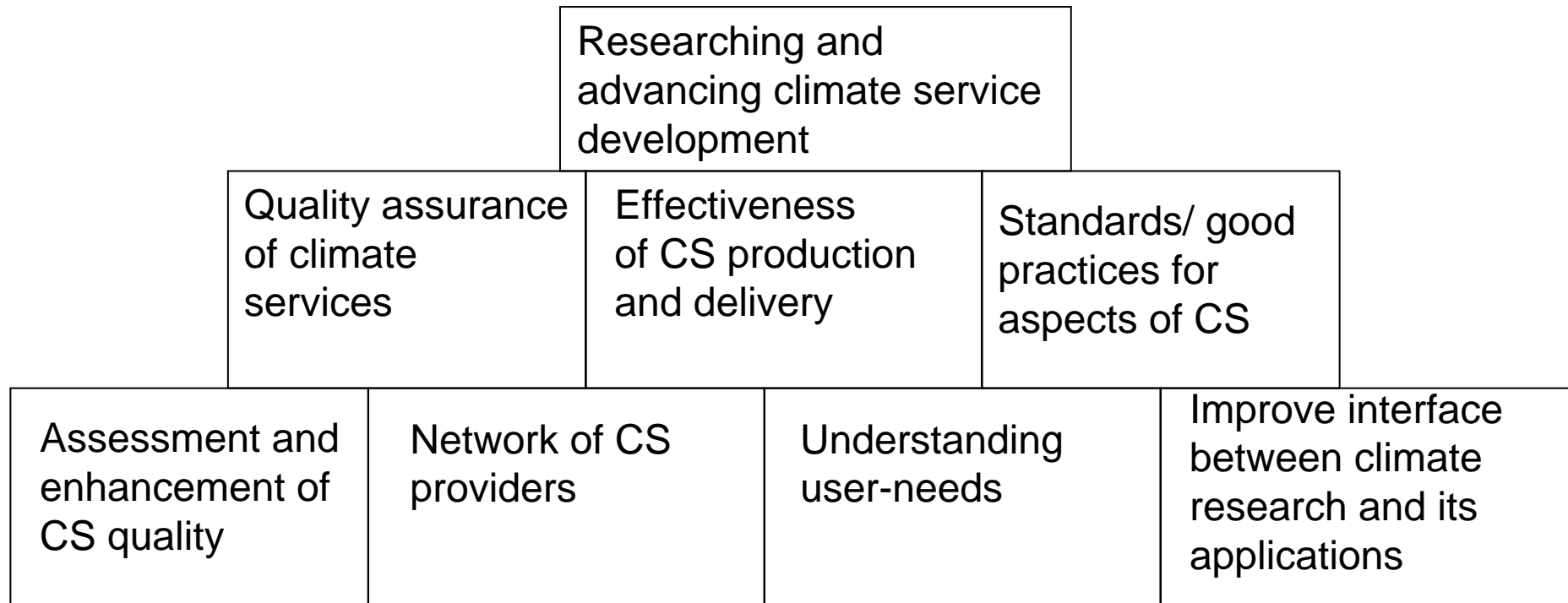
FTA: Research in Support of European Network of Climate Services

FTA: Understanding and providing a focus for JPI on user needs

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Envisaged Timeline

Short- term activities are (1-2 year):

1. User requirements: what is available already (national inventories, from the WMO, EUMETNET, etc.) and what can we learn from it (differences/similarities between countries)?
2. User requirements: What information do users need on short and long term (e.g. is information on extreme events likely to be short- term priority)? How similar/different are the users from different sectors? [This should lead on to the identification of priorities where information is needed – which should then inform future activities within this module of the JPI].
3. Mapping national Climate Services, i.e. a cataloguing of current Climate Services providers and their services/products/tools
4. Exchange of experiences with the help of cross- border case studies
5. General guidelines for some aspects of Climate Services (e.g. how use climate scenarios in various types of situations, what to do and not to do in communication about uncertainties)
6. Web portal for access to the Climate Services in various countries
7. Establish a network of Climate Service providers

Long- term activities are (5year):
* How to define and control quality of Climate Services
* Defining standard/good practices for several aspects of Climate Services
* Research into the effectiveness of Climate Services deployment

FTAs:

-first results in fall 2012

-Second results: beginning of 2013

-National dialogues

-Multinational WS beginning 2013

-Final results March 2013

CSA-funding

-end of 2012 - 2015

-mapping, national dialogues and community building to be continued, supported by a virtual platform/website and through a series of WS for provider and users

Programme of FTAs in Module 2 (June 2012-March 2013)

1.) **Research in support of a European Network of Climate Services**
      (AT, BE, DE; DK, FR, IT, NO, NL, UK, Slovenia, EEA)

-> Mapping exercise of Climate Services to lay ground for mid- to long-term multidisciplinary research on governance of climate services

-> Synthesis report on Climate Services in Europe (Why are they doing what they are doing?) to lay ground for mid-to long-term multidisciplinary research on governance of climate services

-> Link to other modules (M3 to support us with social science expertise, links into M3's mid- and long-term objective of understanding climate services as change agents)

-> Building on research in other Networks/EU and national Projects (Circle-2, ISENES, ECLISE, Knowledge for Climate, etc.)

-> Multinational workshop with users and providers to discuss the results

-> Driver behind FTA: needed to support the mid- to long-term agenda of M2

2.) **Understanding and providing a focus for JPI on user needs** (AT, BE, DE, FI, FR, IT, NO, NL, UK, EEA)

-> Synthesis of existing understanding of user needs

-> Engage other JPI Modules in focusing on user-needs (to inform other modules mid- and long-term plans)

-> National dialogues (List of questions, develop in consultation with other JPI modules),

-> multi-national workshop with users and providers to discuss the results

-> Driver behind FTA: Urgency to inform the further development of JPI, and to inform GFCS and ICCS processes

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Identify differences and similarities between countries/sectors and knowledge gaps

FTA 2.1: User Requirements: What do we know and what not?

Rationale:

- Aim of JPI-Climate: improve the transfer of data, information and knowledge about climate and climate change to society and within Europe. Better dissemination requires proper knowledge on users' needs (two-way process), which set the scope for the relevance of the data/information/knowledge.

- Some information available on users' requirements (practise or from targeted inventories). Relatively little documented, information is scattered, and users' requirements can be very diverse and may change over time.

- Module 2 has the lead in collecting and analysing information about users' requirements and will cooperate with the other modules in JPI-Climate: users' requirements drive the research (Module 1: Seasonal to decadal predictions) and the design of Climate Services (Module 2). Module 3 (Societal transformation) and Module 4 (Decision tools) can help in collecting information about the users' requirements and translate this to Climate Services.

- For a good design (relevant information, logical structure to find data and information, etc.) it would be useful to take into account users' requirements from the early phases of development of climate (change) services.

FTA 2.1: User Requirements: What do we know and what not?

Activities:

- development of a list of required information about users and their requirements;
- collection of documentation about user requirements (e.g. from NHI's, providers of climate services, WMO, international projects, etc.);
- collection of information about user requirements through questionnaire to or interviews with NHI's, international projects such as ECLISE, CLIMRUN, IS-ENES, selected commercial providers of climate services, selected users;
- analysis of the collected information with the list of required information, resulting in an overview of similarities and differences in requirements between sectors and countries, and an overview of knowledge gaps
- multi-national workshop with users and providers to discuss the results of the analysis and required further research/activities;
- suggestions for/discussion paper on required further research, based on the results of the above analysis.

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FTA 2.2: Research in Support of European Network of CS:
## Mapping CS in Europe

Rationale:

- Many countries in the world are currently developing their own climate services, sometimes with multiple providers per country and some providing services within different countries

- Each provider is using its own methods and approaches to deliver data and information.

- will lay the ground for a mid- to long-term multidisciplinary research on the governance of climate services

- Goes beyond typical inventories (who is providing what) by addressing the following questions

  - Why are the climate service providers doing what they are doing?

  - What are the driving factors behind the structure and governance of services they provide?

  - What are the underlying concepts as to how to communicate climate knowledge to end-users?

  - What are the characteristics of the climate services and the providers that contribute to their successes?

  - What factors distinguish between a good and a "bad" service?

  - What is the background of the CSs (engineers, scientists…)?

FTA 2.2: Research in Support of European Network of CS:
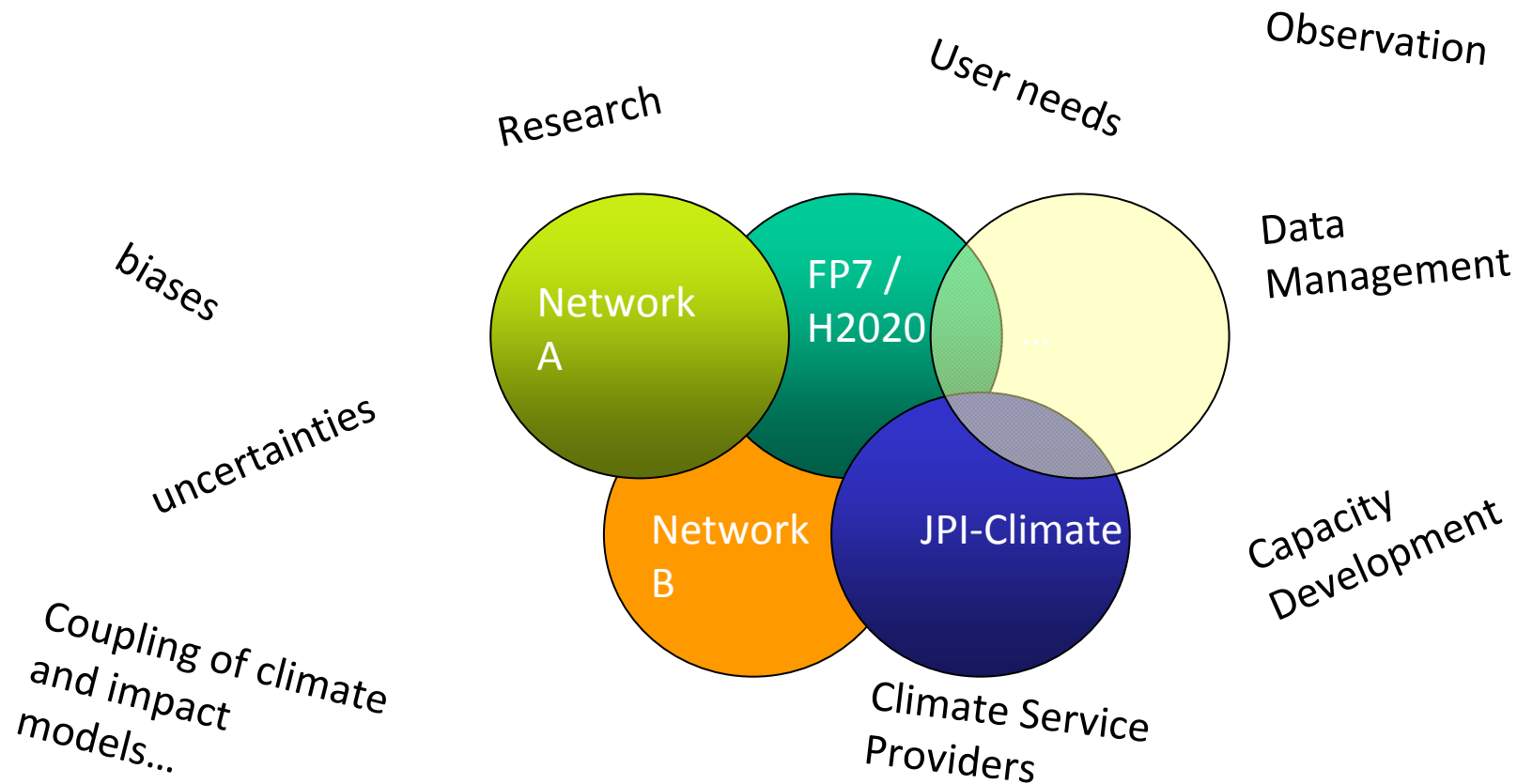   **Mapping CS in Europe**

Activities:

- development of a shared list of climate services and their portfolios;

- collection of documentation about climate services (e.g. from providers of climate services, national, European and international projects, etc.);

- collection of additional information about climate services through a questionnaire to or interviews with CS providers and costumers of climate services, international projects such as ECLISE, CLIMRUN, IS-ENES, in a shared, transparent process
selected commercial providers of climate services, selected users;

- analysis of the collected information, resulting in an overview of similarities and differences in climate services between sectors and countries, and an overview of knowledge gaps

- multi-national workshop with users and providers to discuss the results of the analysis and required further research/activities;

- suggestions for/discussion paper on required further research, based on the results of the above analysis.

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Timeline and Implementation
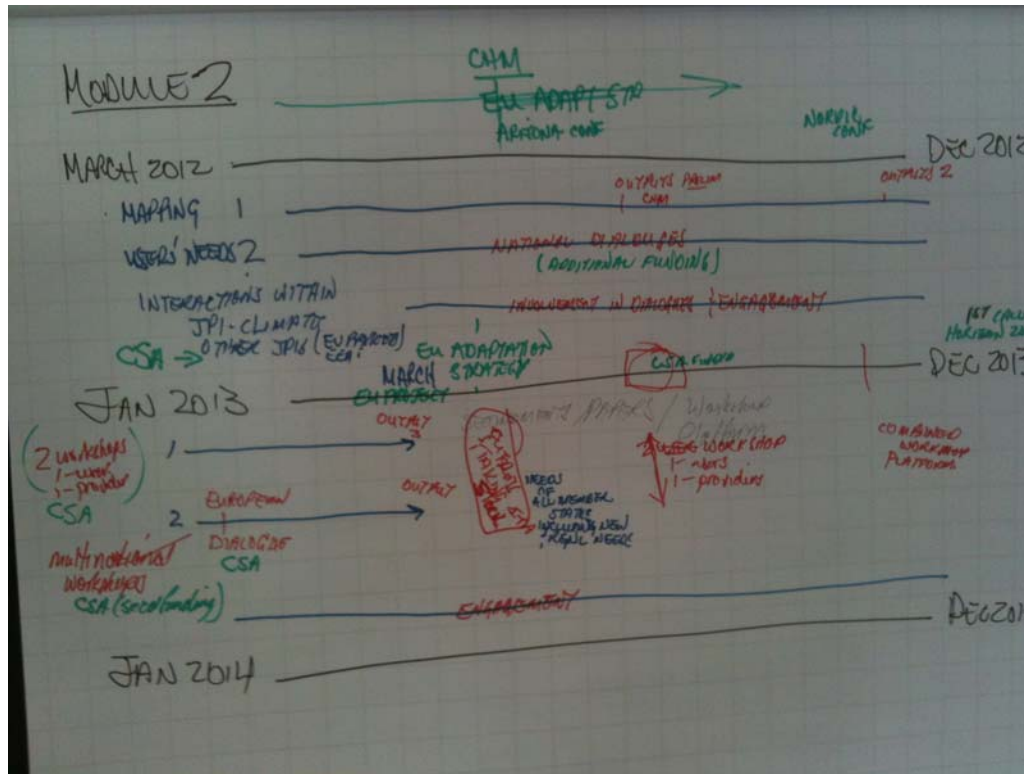
Alignment with other European and International Activities and Conferences (EU Adaptation Strategy, Climate Adapt, European Adaptation Conference, ICCS etc.)

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Structuring the landscape

Observation

User needs

Research

biases

Data Management

Network A

FP7 / H2020

...

uncertainties

Network B

JPI-Climate

Capacity Development

Coupling of climate and impact models...

Climate Service Providers
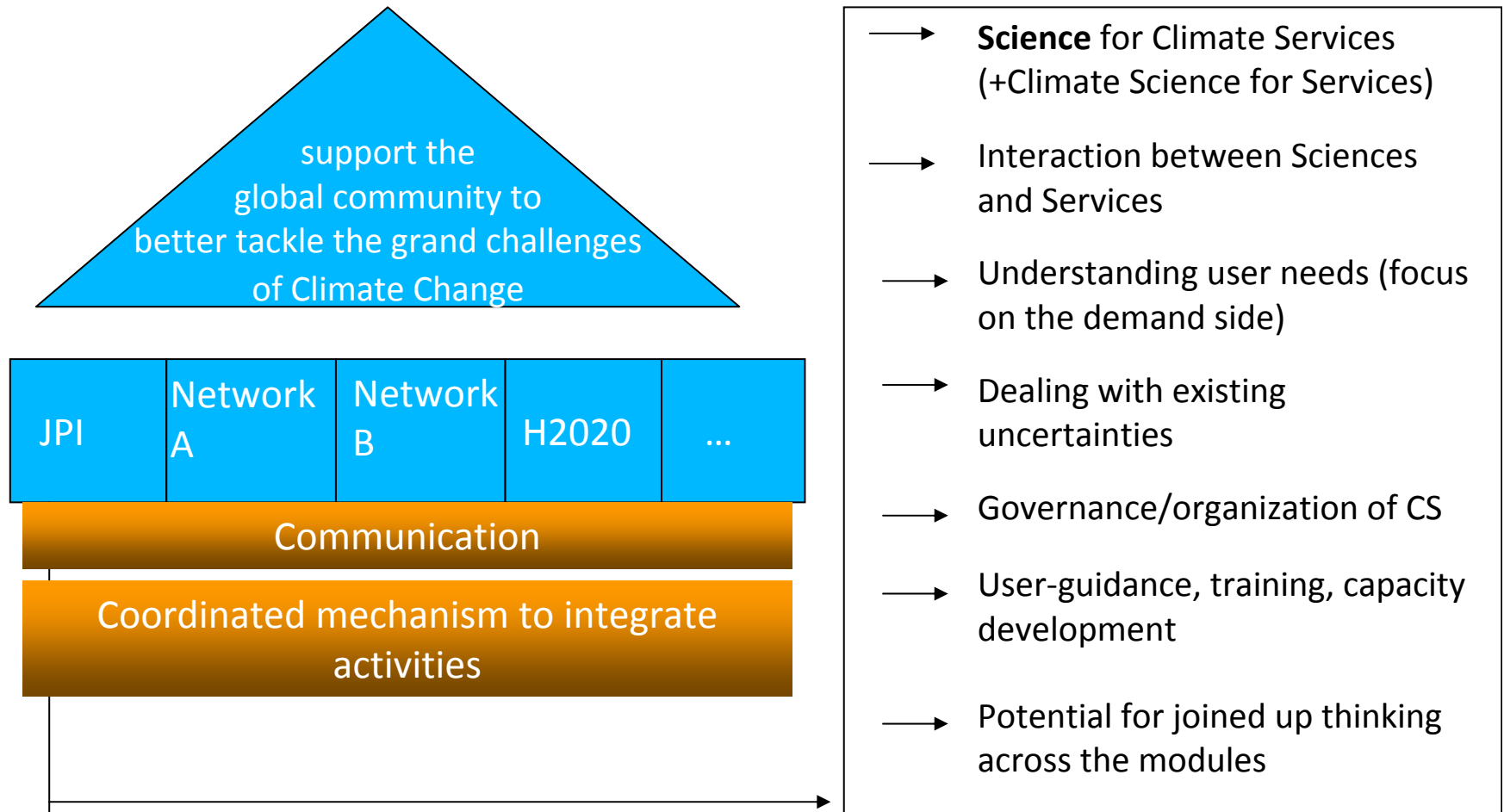
=>We need:

• communication

• a coordinated mechanism to better integrate new and ongoing activities in the field.

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support the
global community to
better tackle the grand challenges
of Climate Change

JPI	Network A	Network B	H2020	…

Communication

Coordinated mechanism to integrate activities

→ **Science** for Climate Services (+Climate Science for Services)

→ Interaction between Sciences and Services

→ Understanding user needs (focus on the demand side)

→ Dealing with existing uncertainties

→ Governance/organization of CS

→ User-guidance, training, capacity development

→ Potential for joined up thinking across the modules

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Working Group Members:

- **Dagmar Bley, PT-DLR, Germany**

- **Reimund Schwarze, CSC Hamburg, Germany**

- **Roger Street, UK Climate Impacts programme (UKCIP), University of Oxford**

- **Janette Bessembinder, Royal Netherlands Meteorological Institute (KNMI)**

- Matthias Themessl, Wegener Center Graz, Austria

- Hans Sanderson, Aarhus University, Denmark

- Reija Ruuhela, Finnish Meteorological Institute – FMI

- Pascale Delecluse, MeteoFrance

- Silvio Gualdi & Eva Banos de Guisasola, Euro-Mediteranean Center on Climate Change CMCC, Italy

- Kees van Delen, Rolyal Netherlands Meteorological Insitute (KNMI)

- Rasmus Benestad, Norwegian Met Office

- Ingrunn B. Lid, Research Council of Norway

- Chris Hewitt, UK Met Office

- Tiago Capela Lourenco, CIRCLE 2 ERA-net, University of Lisbon

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Thank you for your attention!